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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/756,191	01/09/2001	Mitsuo Inoue	201841US2	5684
22850	7590	12/14/2005		
OBLON, SPIVAK, MCCLELLAND, MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER SELBY, GEVELL V	
			ART UNIT	PAPER NUMBER
			2615	

DATE MAILED: 12/14/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/756,191

Applicant(s)

INOUE ET AL.

Examiner

Gevell Selby

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 23 September 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 7 and 9 is/are allowed.
- 6) ☒ Claim(s) 1-6 and 8 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed 9/23/05 have been fully considered but they are not persuasive. The applicant submits the prior art does not disclose the limitations of the claimed invention for the following reasons:

1) "an electrical signal processing means for interleaving the at least two images of the photogenic object into one integrated image of the photogenic object" as claimed in claim 1; and

2) there is no motivation to combine the Hankawa and Erbey references. The Examiner respectfully disagrees.

Examiner's Response:

Re claim 1) The Erbey reference discloses an electrical signal processing means (video circuitry 20) for interleaving the at least two images (see figure 5, elements 60 and 61) of the photogenic object into one integrated image (see figure 5, element 64 or 65) of the photogenic object (see column 6, lines 13-59: The two images (60 and 61) are interlaced using half the vertical lines of the image 60 (see figure 5, element 62) and half of the vertical lines of image 61 (see figure 5, element 63) to form the integrated image 64 or the first frame (A); the two images are interlaced a second time to form integrated image 65 or the second frame (B); therefore, the video circuitry creates not only one but two intergraded images which are then used as complimentary frames for display).

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching,

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suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, the object of the Hankawa reference was to provide a photographing optical apparatus which facilitates stereoscopic photography and panoramic photography, with neither a plurality of video camera nor a plurality of image sensors for a camera, but which is free from degradation of the horizontal resolution, and from frequent alteration between images during scanning of the image sensor (see column 1, lines 41-48). The reference however did not disclose how to display these captured images as stereo images. The Erbey reference discloses an apparatus for the generation of a full-spectrum stereographic display that vertically interleaves images and displays the images at a sufficient frame rate to prevent undesirable flicker (see column 2, lines 46-49 and column 6, lines 16-20). By using the camera of the Hankawa reference with the video processing and display system of the Erbey reference, the new system would allow for the display of stereographic images with the use of one camera instead of two. It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify the Hankawa reference in view of the Erbey reference to have an electrical signal processing means for interleaving the at least two images of the photogenic object into one integrated image of the photogenic object, in order to produce a high quality stereographic image, from the two images, that can be displayed without the use of display glasses.

It is also noted that the Hankawa reference does not teach away from the Erbey reference at col. 1, lines 29-36. The applicant has taken portions of the reference out of context in the first

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paragraph of page 5 of the response, because in that passage Hankawa stating “changeover from one image to another” and “changeover control of the images becomes complicated” is referring to a camera in which images are formed on one image sensor arranged in a lateral direction, not a system with two cameras as Erbey.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850.

In regard to claim 1, Hankawa et al., US 5,727,239, discloses an imaging apparatus comprising:

an imaging device (see figure 1) having a plurality of photoelectric transfer devices arranged in a matrix shape to detect a light irradiated to each photoelectric transfer device and transfer the light into an electric signal (see column 2, lines 32-35: it is inherent that the CCD (6) has a plurality of photoelectric transfer devices arranged in matrix-shape, in order to capture the two-dimensional images.);

imaging means for imaging an image of a photogenic object (see figure 1, element 6) on a surface of the imaging device, the imaging means imaging at least two images

(see figure 1) of the photogenic subject onto different areas of the surface of the imaging device (see column 2, lines 44-51).

The Hankawa reference does not disclose an electric signal processing means for interleaving the at least two images of the photogenic object into one integrated image of the photogenic object.

Erbey, US 6,476,850, discloses an electrical signal processing means (video circuitry 20) for interleaving the at least two images (see figure 5, elements 60 and 61) of the photogenic object into one integrated image (see figure 5, element 64 or 65) of the photogenic object (see column 6, lines 13-59: The two images (60 and 61) are interlaced using half the vertical lines of the image 60 (see figure 5, element 62) and half of the vertical lines of image 61 (see figure 5, element 63) to form the integrated image 64 or the first frame (A); the two images are interlaced a second time to form integrated image 65 or the second frame (B); therefore, the video circuitry creates not only one but two intergraded images which are then used as complimentary frames for display).

It would have been obvious to one of ordinary skill in the art at the time of invention to have been motivated to modify Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, to have an electric signal processing means for interleaving the at least two images of the photogenic object into one integrated image of the photogenic object, in order to produce a high quality stereographic image from the two images that can be displayed without the use of display glasses.

In regard to claim 2, Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, discloses all the limitations of claim 1. The Hankawa reference discloses that

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the imaging means is composed of a plurality of lens systems (see figure 1, elements 4 a & b) having the same shape or refractive index and arranged in a plane parallel to a light receiving surface of the imaging device (see figure 1 and column 2, lines 26-34).

In regard to claim 3, Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, discloses all the limitations of claim 2. The Hankawa reference discloses that the image formation lenses composing each lens system are formed integrally (see Figure 1, elements 4a & b: each system of lenses (4a and b) is shown to be formed integrally or together as one unit).

In regard to claim 6, Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, discloses all the limitations of claim 1. The Hankawa reference discloses that the imaging means includes a plurality of lens systems (see figure 1, elements 4 a & b and column 2, lines 26-34), and an optical center of each of the plurality of lens systems is aligned axially with a center of a corresponding one of the plurality of photoelectric devices (see figure 1, paths a and b: The lens are aligned with the image sensor so that the centers of the optical paths (a and b) align with the center pixel of the CCD).

In regard to claim 8, Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, discloses all the limitations of claim 1. The Hankawa reference discloses wherein the electrical signal processing means interleaves pixels of corresponding position of the at least two images (see column 4, lines 34-55).

4. Claims 4 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, as applied to claim 1 above, and further in view of Nelson, US 5,237,340, in further view of Booth US 5,738,427.

In regard to claims 4 and 5, Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, discloses all the previous limitations in claim 2. The Hankawa and Erbey references do not disclose that a plurality of image formation lenses composing each lens system are formed integrally of material or bonded on a substrate having a linear expansion coefficient of not more than $1 \times 10^{-5}/^{\circ}\text{C}$. However, it is well known in the art that a high linear expansion coefficient in a lens will cause deformation of the lens, resulting in an unclear image. Pyrex lenses have a low linear expansion coefficient and thus can solve this problem as Nelson and Booth teach in the following:

Nelson teaches an integrally formed lens portion made of Pyrex glass (Column 5, Lines 60-69). Booth further teaches that Pyrex glass has a low linear expansion coefficient of not more than $1 \times 10^{-5}/^{\circ}\text{C}$ (Column 5 Lines 55-63).

The use of a low coefficient of linear expansion will allow for the rigid mounting of a lens and also the high change in temperature will not cause deformation of the lens and thus cause it to be out of focus.

By making the lenses (4a & b) of Hankawa Pyrex lenses as taught in Nelson, the image formation lenses composing the lens system would be formed of a material having a linear expansion of not more than $1 \times 10^{-5}/^{\circ}\text{C}$.

Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to have been motivated to modify Hankawa et al., US 5,727,239, in view of Erbey, US 6,476,850, further in view of Nelson, US 5,237,340, and Booth US 5,738,427 to have a plurality of image formation lenses composing each lens system formed integrally of material or bonded on a substrate having a linear expansion

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coefficient of not more than $1 \times 10^{-5}/^{\circ}\text{C}$ in order to be able to rigidly mount the lens and not have deformation of the lens resulting in an out of focus unclear image.

Allowable Subject Matter

5. Claims 7 and 9 are allowed.
6. The following is a statement of reasons for the indication of allowable subject matter:

The prior art does not disclose an imaging apparatus with the combination of limitations claimed, specifically the limitation of:

“the lens apparatus directing the at least three images of the subject onto at least three different areas of the surface of the imaging device; and
an electric signal processor configured to interleave at least three images of the subject to form an integrated image of the subject” as claimed in claim 7.

Conclusion

7. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event,

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however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gevell Selby whose telephone number is 571-272-7369. The examiner can normally be reached on 8:00 A.M. - 5:30 PM (every other Friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on 571-272-7593. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

gvs

A handwritten signature in black ink, appearing to read 'David Ometz', with a long horizontal line extending to the right.

DAVID OMETZ
SUPERVISORY PATENT EXAMINER